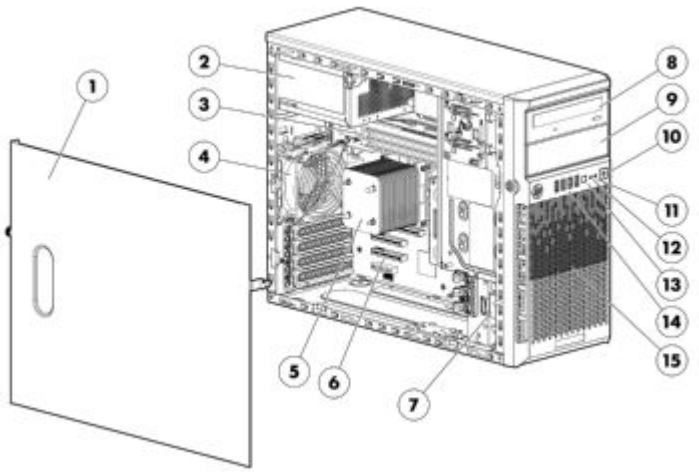
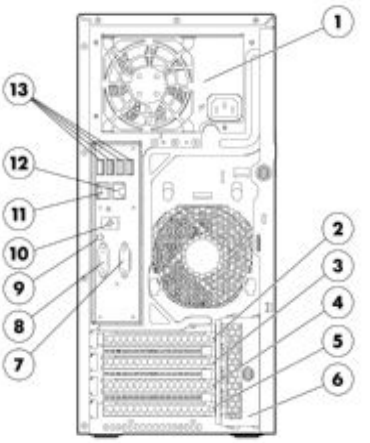
Overview

The HP ProLiant ML310e Gen8 is perfect entry server for growing business. It provides an affordable and steadfast solution to small and medium business for small and medium business who are budget conscious and who have no in-house IT resources.

With proven ProLiant reliability and the support for the latest Intel Xeon®, Core i3, Pentium G series processors and RPS with 2 NICS. A mix of PCI-Express slots, DIMM slots and server options delivers the expandability needed. Integrated iLO4 remote management drives down the operational costs by reducing the number of physical visits. Optional TPM provides for additional level of security. The standard power supply and RPS both are available now with more efficient and reduces power consumption further. Intelligent Provisioning OS install utility running from on-board flash memory.





Front View:

1. Quick removal access panel
2. Power Supply
3. Four DIMM slots
4. System fan
5. Processor Heatsink
6. Four (4) PCIe expansion slots
7. PCI Fan
8. Half Height SATA DVD-ROM or DVD RW Optical Drive
9. Media Drive Blank
10. Power Button
11. NIC Activity LED
12. System Health
13. UID LED button
14. Four (4) USB connectors
15. Four (4) LFF or Eight (8) SFF SAS/SATA HDD cage

Rear View:

1. Power supply
2. Slot 4 PCIex16
3. Slot 3 PCIex8
4. Slot 2 PCIex8
5. Slot 1 PCIex4
6. PCIe card bracket
7. Serial Connector
8. Video Connector
9. UID LED Button
10. iLO Dedicated Lan Port (optional)
11. NIC Connector 1 (shared management)
12. NIC Connector 2
13. Four (4) USB Connectors

Standard Features

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor
One of the following depending on Model

Entry Processors
NOTE: Intel® Celeron® G540 supports up to 1066MHz DDR3 memory speeds. Intel® Pentium® G860 supports up to 1333 MHz DDR3 memory speeds.
Celeron processor, performance for 1600MHz memory is clocked down to 1066MHz.
Pentium processor, performance for 1600MHz memory is clocked down to 1333MHz.

Intel® Celeron® G540 (2.5GHz/2-core/2MB/65W) Processor

Intel® Pentium® G2120 (3.1GHz/2-core/3MB/55W) Processor

Base Processors
NOTE: All support up to 1600MHz DDR3 memory speeds.

Intel® Core™ i3-3220 (3.3GHz/2-core/3MB/65W, HT) Processor

Intel® Core™ i3-3240 (3.4GHz/2-core/3MB/65W, HT) Processor

Performance Processors
NOTE: All support up to 1600MHz DDR3 memory speeds.

Intel® Xeon® E3-1220Lv2 (2.3GHz/2-core/3MB/17W, HT)

Intel® Xeon® E3-1220v2 (3.1GHz/4-core/8MB/69W)

Intel® Xeon® E3-1230v2 (3.3GHz/4-core/8MB/69W, HT)

Intel® Xeon® E3-1240v2 (3.4GHz/4-core/8MB/69W, HT)

Intel® Xeon® E3-1270v2 (3.5GHz/4-core/8MB/69W, HT)

Intel® Xeon® E3-1280v2 (3.6GHz/4-core/8MB/69W, HT)

NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology.
NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed (options for 1600, 1333, 1066MHz).

Cache Memory
One of the following depending on Model

8MB (1 x 8MB) L3 Cache
NOTE: For Quad-core Xeon processors.

3MB (1 x 3MB) L3 Cache
NOTE: For Dual-core Xeon, Core i3, and Pentium processors.

2MB (1 x 2MB) L3 Cache
NOTE: For Dual-core Celeron processors.

NOTE: All processor models above list the L3 Cache associated with that particular processor.

Chipset

Intel® C204 Chipset

NOTE: For more information regarding Intel® chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.

Upgradeability

Upgradeable to 4 cores
NOTE: Total 2 or 4 cores

Up to 4 DIMM slots available for higher memory capacity

Up to 8 SFF Hard Drive Bays; Or 4 LFF Hard Drive Bays

1 x8 and 1 x16 PCIe 3.0 (depends on processor) and 1 x8 and 1x4 PCIe 2.0 I/O slots for additional communications and storage expansion

Redundant Power Supply

Optical Drive Bay (up to 2)

Standard Features

On System Management Processor

HP iLO (Firmware: HP iLO4)

NOTE: For more information, visit: http://www.hp.com/go/ilo

Memory Protection

ECC

Memory
One of the following depending on model

Type	HP SmartMemory DDR3 Unbuffered (UDIMM)
DIMM Slots Available	4
Standard (Base Models)	2GB (1 x 2GB) PC3-12800E DDR3 UDIMM
Standard (Performance Models)	4GB (1 x 4GB) PC3-12800E DDR3 UDIMM
Maximum Capacity (UDIMM)	32 GB (4 x 8 GB UDIMM @1600MHz)

NOTE: HP memory from previous generation servers are not fully compatible with the HP ProLiant ML310e Gen8 Server.

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1600MHz, 1333MHz, or 1066MHz. Please see Memory Population Table or the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.

Network Controller

HP Ethernet 1Gb 2-port 330i Adapter

Expansion Slots

Expansion Slot #	Technology	Bus Width*	Connector Width	Form Factor	Notes
4	PCIe 3.0	X8	X16	Full Length/Full Height	
3	PCIe 3.0	X8	X8	Full Length/Full Height	
2	PCIe 2.0	X4	x8	Full Length/Full Height	
1	PCIe 2.0	X1	X4	Half Length/Full Height	

*Indicates the number of physical electrical lanes running to the connector.
NOTE: PCIe Gen3 support with Intel Xeon E3-1200v2 family only.

Standard Features

HP Server ROM

HP ROM (Read Only Memory) is now digitally signed using HP's Corporate Signing Service. This signature is verified before the flash process starts, reducing accidental programming and preventing malicious efforts to corrupt system ROM.

HP ROM provides for essential initialization and validation of hardware components before control is passed to the customer-installed operating system. The ROM also provides the capability of booting from various fixed media (HDD, CD-ROM) and removable media (USB), to continue operation to the operating system.

HP ROM performs very early configuration of the video controller, to allow monitoring of initialization progress via an attached monitor. If configuration or hardware errors are discovered during this early phase of hardware initialization, suitable messages are now displayed on the connected monitor. Additionally, these configuration or hardware errors are logged to the Integrated Management Log (IML) to assist in diagnosis.

HP's ProLiant ROM is used to configure the following:

- Processor and chipset status registers
- System memory, memory map, and memory initialization
- System hardware configuration (Integrated PCI devices and optional PCIe cards).
- Customer-specific BIOS configuration (using the HP ROM-Based Setup Utility (RBSU).

NOTE: For further information, please refer to HP's RBSU (ROM based setup utility) user guide: www.hp.com/support/rbsu.

Storage Controller

HP Dynamic Smart Array B120i Controller

NOTE: Supports 3.0Gb/s SATA
NOTE: Supports RAID 0/1/10 only. No FBWC support. For FBWC, a standup Smart Array Controller card must be configured.
NOTE: For set up instructions, please refer to the HP ProLiant ML300 series server user guide.
NOTE: For general information about HP Smart Array B120i SATA RAID Controller, please go to:
http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb120i/index.html

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Internal Storage Devices

Optical Drives One of the following depending on model	HP Half-Height SATA DVD-ROM Optical Drive HP Half-Height SATA DVD-RW Optical Drive
Hard Drives	1x500GB NHP LFF SATA HDD included in Entry Model None ship standard in Base and Performance Models
Hard Drive Bays One of the following depending on model	4 LFF drive bays (non-hot-plug and hot-plug) 8 SFF hot-plug drive bays **NOTE:** HP ProLiant ML310e Series servers offer both SFF, and LFF versions in CTO. **NOTE:** All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using either P/N 666987-B21: HP SFF Gen8 Hard Drive Blank Kit or P/N 666986-B21: HP LFF Gen8 Hard Drive Blank Kit.

Standard Features

Maximum Internal Storage One of the following depending on model	Hot Plug LFF SAS	12TB	4 x 3TB
	Hot Plug LFF SATA	12TB	4 x 3TB
	Hot Plug SFF SAS	8TB	8x 1 TB
	Hot Plug SFF SATA	8TB	8 x 1TB
	Non Hot Plug LFF SAS	2.4TB	4 x 600GB
	Non Hot Plug LFF SATA	12TB	4 x 3TB
	Hot Plug SFF SATA SSD	800GB	8 x 100GB
	Hot Plug LFF SATA SSD	400GB	4 x 100GB

Interfaces	Serial	1 (rear)
	Video	1 (rear)
	Network RJ-45 (Ethernet)	2 (1 shared for HP Integrated Lights-Out)
	HP iLO Remote Management Network Port	1 Gb Dedicated (Optional)
	SD slot	1 (internal) **NOTE:** The SD slot is not a hot-pluggable device. Customers should not attempt to plug an SD card into the SD slot while the server is powered.
	USB	10 (4 front, 4 rear, 1 internal standard USB and 1 internal USB header)

Industry Standard Compliance

ACPI 2.0b Compliant
PCIe 3.0 Compliant
PXE Support
WOL Support
Microsoft® Logo certifications
USB 2.0 Support

Server Power Cords

The ProLiant ML310e Gen8 server is a tower server that ships standard with a 6' country specific NEMA power cord that allows connection to wall outlets in a home or office. If customers require additional local power cords, they can check the power cord matrix for the appropriate country specific sku. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix. To install the ML310e Gen8 server in a rack, the Tower to Rack Conversion kit (417705-B21) is required as well as a PDU power cord (416151-B21) to connect to a PDU in a data center rack.

Power Specifications

To review typical system power requirements, use the HP Power Advisor which is available via download at URL: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor.

NOTE: Power Specification and Technical Content for supported power supplies can be found at: http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html

Standard Features

Power Supplies

The ML310e Gen8 supports two power supplies, a 350W Multi-Output Power Supply and a 460W Common Slot Gold Power Supply. The 350W Multi-Output Power Supply is a non-redundant power supply with an efficiency rating of 85%.

HP's Common Slot (CS) power supplies allow for commonality of power supplies across a wide range of ProLiant and Integrity servers, as well as HP Storage solutions, and are designed to provide the highest power supply efficiency without degrading system performance. HP CS power supplies are tested by the Electric Power Research Institute (EPRI) and certified through the ECOS 80 Plus power supply program. The 460W HP CS power supply option provides an efficiency rating of up to 92%. All HP Common Slot power sources are UL, CE Mark Compliant, hot-plug and support redundant configurations.

NOTE: Mixing of power supplies in the same server is not supported. All power supplies must be of the same output and efficiency rating. If non-matched power supplies are inserted you will get errors and operation will fail.

It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your needs. HP Power Advisor can be accessed at: www.hp.com/go/hppoweradvisor.

NOTE: The 80 PLUS program is a unique forum that unites electric utilities, the computer industry, and consumers in an effort to bring energy efficient technology solutions to the marketplace. 80 Plus independently tests power supply efficiency and publicly posts the results on 80Plus.org.

Redundant Power: Optional (1 + 1 redundant) power supplies can be purchased through power supply option kits (see Power Supplies for part numbers).

NOTE: Power Specification and Technical Content for supported power supplies can be found at: http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html

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System Fans

One (1) Non-redundant system fan ships standard

One (1) Non-redundant PCIe fan ships standard

Operating Systems and Virtualization Software Support for ProLiant Servers

Microsoft Windows Server

Red Hat Enterprise Linux (RHEL)

SUSE Linux Enterprise Server (SLES)

VMware

NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: http://www.hp.com/go/ossupport and our driver download page: http://www.hp.com/support/ML310eGen8.

Graphics

Integrated Matrox G200 video standard

- 1280 x 1024 (32 bpp)
- 1920 x 1200 (16 bpp)

HP iLO 4 On System Management Memory

- 16 MB Flash
- 256 MB DDR 3 with ECC (112 MB after ECC and video)

Standard Features

Form Factor One of the following depending on model	Micro ATX Tower (4U) chassis with feet/bezel: 14.5" (36.82cm) Height x 6.89" (17.5cm) Width x 18.71" (47.52cm) Length 8 SFF Drive Bay Cage: 4.6" (11.72cm) Height x 5.74" (14.57cm) Width x 4.79" (12.16cm) Length 4 LFF Drive Bay Cage: 4.6" (11.72cm) Height x 5.74" (14.57cm) Width x 6.90" (17.54cm) Length	

On System Management	HP iLO Management Engine	HP iLO Management Engine is a comprehensive set of embedded management features supporting the complete lifecycle of the server, from initial deployment, through ongoing management, to service alerting and remote support. HP iLO Management Engine comes standard on all HP ProLiant Gen8 servers. The HP iLO Management Engine portfolio includes:
		• **HP iLO:** The HP iLO (Integrated Lights-Out) management processor is the core foundation for the HP iLO Management Engine
		• **HP Agentless Management:** Provides built in server health monitoring and alerting capability without OS agents, that starts working the moment a power cord and an Ethernet cable are connected.
		• **HP Active Health System:** Always on, continuous monitoring for increased stability and shorter downtimes; 100% configuration history; Health and service alerts and easy export and upload to Service and Support.
		• **HP Intelligent Provisioning:** Lets customers provision and configure a single server without any separate media. No more SmartStart CDs or Smart Update Firmware DVD are needed.
		  ○ To start Intelligent Provisioning:
		  ▪ Press the F10 key during the ProLiant Gen8 server boot process (also known as power on self test or POST).
		  ▪ Please go to the Intelligent Provisioning website at www.hp.com/go/intelligentprovisioning for additional information and to view usage videos.
		  ▪ Use the Service Pack for ProLiant (SPP) at www.hp.com/go/spp to get firmware and software updates.
		• **HP iLO Mobile App:** Enables the ability to access, deploy, and manage your server anytime from anywhere from select smartphones and mobile devices. For additional information please visit: www.hp.com/go/ilo/mobileapp
		NOTE: For more information, visit: http://www.hp.com/go/ilo or HP iLO Management Engine technologies whitepaper

Standard Features

HP Insight Management	HP Service Pack for ProLiant (SPP)	HP Service Pack for ProLiant (SPP) and HP Smart Update Manager (HP SUM) version 5 provide a new, comprehensive approach to firmware and system software maintenance. Together they provide better operating stability and ensure maximum uptime. The SPP will be updated at a predictable cadence, typically coinciding with new HP server hardware launches. By enabling all firmware to be updated online and integrating firmware and system software updates in one operation HP SUM and the SPP offer faster updates of individual servers and dramatically faster updates of entire BladeSystem enclosures. Further improving system uptime and stability is the fact that HP provides 12 months of support on each Service Pack for ProLiant. The user experience around HP SUM and the SPP has been improved in several ways, starting with the web download. A single web page provides access to a single download containing both the latest version of HP SUM version 5 and the latest SPP. Optional smaller subsets with only specific types of servers or specific operating systems are offered to save on download time. The HP SUM application has been re-written to provide a more straightforward, intuitive user interface that guides the user through the steps of discovery, analyses and update, providing comprehensive information on available updates, criticality and interdependencies. This information is also available in reports. By providing the option of multiple local or shared repositories which can be easily updated from hp.com, HP SUM provides the tools to optimize stability and consistency throughout the company. While HP SUM and the SPP will recommend the combinations of firmware and system software that HP has found to be the best practice, the application gives customers the flexibility to set their own specific baseline. The Service Pack for ProLiant has been rigorously tested with specific attention for interaction between firmware, drivers and agents both within the server as well as in interaction with the BladeSystem enclosure components (Onboard Administrator and Virtual Connect). This testing ensures the highest quality as well as providing the input for HP SUM to deploy updates taking into account all interdepencies, when determining the correct updates and order of update deployment. **NOTE:** The Service Pack for ProLiant (which includes HP SUM 5) can be downloaded from www.hp.com/go/spp/download. More information can be found: www.hp.com/go/spp and http://www.hp.com/go/hpsum
Security	Power-on password Administrator's password	

Standard Features

Warranty

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details. **NOTE:** Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response. (3-1-1 warranty offered in Brazil only). Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Optional Features

HP Insight Management	HP Insight Control	HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. HP Insight Control also supports Location and Power Discovery Services to automate many configuration, asset tracking, and power management tasks to speed implementation and prevent downtime. For more information, see http://www.hp.com/go/insightcontrol. HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, see: http://www.hp.com/services/insight.
	HP iLO Advanced License for ProLiant Servers	HP iLO management processors for HP ProLiant Gen8 servers virtualizes system controls to help simplify server setup, engage health monitoring and power and thermal control, and promote remote administration. HP iLO functions out-of-the-box without additional software installation and functions regardless of the servers' state of operation. Basic system board management functions, diagnostics, and essential Lights-Out functionality ships standard across all HP ProLiant Gen8 rack, tower and blade servers. The HP iLO can be accessed from any location via a web browser and works hand-in-hand with HP Systems Insight Manager, Insight Control, and Insight Dynamics, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service to the business. Advanced functionality, such as graphical remote console, multi-user collaboration, and video record/playback can be activated with the optional HP iLO Advanced or HP iLO Advanced for BladeSystem licenses. The Advanced licensed features offer sophisticated remote administration of servers in dynamic data center and remote locations and can help significantly reduce cost associated with IT-related travel and unplanned downtime. **NOTE:** For more information, visit: http://www.hp.com/go/ilo
HP Insight Online		HP Insight Online is a new addition to the HP Support Center for one stop, secure access to product and HP support information personalized to your IT environment. Insight Online can automatically display devices remotely monitored by HP Insight Remote Support. With Insight Online's easy navigation you can efficiently track your IT support contracts and device status from anywhere and at anytime. www.hp.com/go/insightonline

Optional Features

Factory Express Portfolio for Servers and Storage	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches. For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express
HP Enterprise Configurator	The HP eConfigure Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. For additional information please visit: http://www.hp.com/products/configurator

Service and Support

HP Technology Services for Industry Standard Servers and BladeSystem

Capitalizing on HP ProLiant server and HP BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment.That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services.

What HP ProLiant and BladeSystem Services can do for you

HP ProLiant and BladeSystem Services can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. This way, HP proposes services solutions that include more than just uplift of base warranty. Foundation Care services deliver scalable support-packages for HP industry-standard servers and software. You can choose the type and level of service that is most suitable for their business needs. New to this portfolio is HP Collaborative Support. If you are running business critical environments, HP offers Proactive Care or Critical Advantage. These services help deliver high levels of application availability through proactive service management and advanced technical response

You can get the support you need by choosing from one of a number of service packaged solutions we have designed to address wider set of customer support needs.

HP Technology Services meets business challenges with services offered in three support recommendations - **Optimized Care, Standard Care, and Basic Care** - available for each product group. Such support solutions enable customers to optimize technology operations, minimize risk and drive better business outcomes with easy-to-buy, easy-to-use scalable support recommendations for servers, storage, networking and software.

All three service recommendations include support services from the broader portfolio of Foundation Care and Proactive Care services.

Optimized Care

Optimized Care: Supports maintaining servers at optimum performance availability

HP ProLiant Server Hardware Installation

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf

HP Installation and Startup for Insight Control Software / HP SIM

Provides for the deployment and basic configuration of HP Insight Control or HP SIM (Systems Insight Manager) on HP ProLiant ML and DL series servers or HP BladeSystem servers http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf

3-Year HP 24x7 4 hour Response, Proactive Care or Critical Advantage

Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your query or issue end to end until resolved, delivering a single point of contact for you

Additional Services: Factory Express, Education Services, Proactive Select - 30 Credits

Standard Care

Standard Care: Service recommendation that maintains high level of server availability

HP ProLiant Server Hardware Installation

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf

HP Installation and Startup for Insight Control Software / HP SIM

Provides for the deployment and basic configuration of HP Insight Control or HP SIM (Systems Insight Manager) on HP ProLiant ML and DL series servers or HP BladeSystem servers http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf

Service and Support

3-Year HP 24x7 4 hour Response, Collaborative Support
Provides problem resolution support across the stack of HW, firmware, and HP and 3rd party SW. In case the issue is with 3rd party SW, HP does known issue resolution. If HP cannot solve the issue, it will contact the third-party vendor and create a problem incident on your behalf.
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-8232ENW.pdf

Additional Services: Software support service with 24X7 availability with a 2 hour response, Training courses on Microsoft, Linux (Red Hat and SUSE), VMware, and HP Insight Software, 10 Proactive Select Credits, Factory Express
http://www8.hp.com/us/en/business-services/it-services.html?compURI=1078865

Basic Care

Basic Care: delivers minimum recommended support service level

HP ProLiant Server Hardware Installation
Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf

3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service
Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged.
http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf

Additional Services: Factory Express, Education Services, Proactive Select - 10 Credits

Insight Remote Support
Provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. Learn more http://www.hp.com/go/insightremotesupport

HP Support Center
Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more
http://www.hp.com/go/hpsc

HP's Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime. HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement.

*HP Support Center Mobile App is subject to local availability

Warranty / Service Coverage
For ProLiant servers and storage systems, the services cover HP-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by HP as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option.

For more information
To learn more on HP ProLiant servers and HP BladeSystem servers, please contact your HP sales representative or HP Authorized Channel Partner. Or visit:
http://www.hp.com/services/proliant

Pre-configured Models

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.
NOTE: Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
NOTE: HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
NOTE: If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.
NOTE: Maximum speed supported depends on the CPU installed.
Please see Memory Population Table or the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.
NOTE: All Pre-configured Models come populated with some hard drive blanks installed. Should the customer need additional hard drive blanks, they can order more using either P/N 666987-B21: HP SFF Gen8 Hard Drive Blank Kit or P/N 666986-B21: HP LFF Gen8 Hard Drive Blank Kit.
NOTE: Not all models are available in all regions. Check with your local country HP offices for availability.

Entry Models

HP ProLiant ML310e Gen8 i3-3220 1P 2GB-U Non-hot Plug LFF 350W PS Entry Server 674785-xx1	**Processor(s)**	(1) Intel® Core® i3-3220 (3.3GHz/2-core/3MB/65W, HT) Processor
	Cache Memory	3MB (1 x 3MB) L3 cache
	Memory	2GB (1 x 2GB) PC3-12800E DDR3 UDIMM
	Network Controller	HP Ethernet 1Gb 2-port 330i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	1x500GB NHP LFF SATA
	Internal Storage	4 LFF NHP SAS/SATA HDD cage; includes 3 LFF hard drive blanks
	Optical Drive	HP Half-Height 16x SATA DVD-ROM
	Power Supply	HP 350W Multi-Output Power Supply **NOTE:** The standard power supply for the Entry Model is an 85% efficient Multi-Output Power Supply. It is a non-redundant, not-hot-plug power supply.
	Fans	One (1) Non-redundant system fan ships standard One (1) Non-redundant PCIe fan ships standard
	Management	HP iLO Management Engine (standard on shared system NIC) Optional: HP Insight Control
	Form Factor	Micro ATX Tower (4U)
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response (3-1-1 warranty offered in Brazil only).

Pre-configured Models

Base Models

HP ProLiant ML310e Gen8 E3-1220v2 1P 2GB-U Hot Plug 4 LFF 460W PS Base Server 674786-xx1	**Processor(s)**	(1) Intel® Xeon® E3-1220v2 (3.1GHz/4-core/8MB/69W, HT) Processor
	Cache Memory	8MB (1 x 8MB) L3 cache
	Memory	2GB (1 x 2GB) PC3-12800E DDR3 UDIMM
	Network Controller	HP Ethernet 1Gb 2-port 330i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	None ship standard
	Internal Storage	4 LFF SAS/SATA HDD cage; includes 3 LFF hard drive blanks
	Optical Drive	HP Half-Height 16x SATA DVD-ROM
	Power Supply	HP 460W Common Slot Gold Hot Plug Power Supply
	Fans	One (1) Non-redundant system fan ships standard One (1) Non-redundant PCIe fan ships standard
	Management	HP iLO Management Engine (standard on shared system NIC) Optional: HP Insight Control
	Form Factor	Micro ATX Tower (4U)
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response (3-1-1 warranty offered in Brazil only).

Performance Models

NOTE: These Models are Energy Star Certified.

HP ProLiant ML310e Gen8 E3-1240v2 1P 4GB-U Hot Plug SATA 4 LFF 460W PS Perf Svr 674787-xx1	**Processor(s)**	(1) Intel® Xeon® E3-1240v2 (3.4GHz/4-core/8MB/69W, HT) Processor
	Cache Memory	8MB (1 x 8MB) L3 cache
	Memory	4GB (1 x 4GB) PC3-12800E DDR3 UDIMM
	Network Controller	HP Ethernet 1Gb 2-port 330i Adapter
	Storage Controller	HP Dynamic Smart Array B120i Controller
	Hard Drive	None ship standard
	Internal Storage	4 LFF SAS/SATA HDD cage; includes 3 LFF hard drive blanks
	Optical Drive	HP Half-Height 16x SATA DVD-RW
	Power Supply	HP 460W Common Slot Gold Hot Plug Power Supply
	Fans	One (1) Non-redundant system fan ships standard One (1) Non-redundant PCIe fan ships standard
	Management	HP iLO Management Engine (standard on shared system NIC) Optional: HP Insight Control
	Energy Star	Meets Energy Star requirements
	Form Factor	Micro ATX Tower (4U)
	Warranty	Server Warranty includes 1-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response (3-1-1 warranty offered in Brazil only).

Pre-configured Models

Country Code Key	Tower Code Key
xx=00	US
xx=01	Australia
xx=03	UK
xx=04	Germany
xx=05	France
xx=20	Brazil
xx=29	Japan
xx=37	APD
xx=42	Europe
xx=AA	PRC

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.
NOTE: Factory Integrated Models must start with a CTO Server.
NOTE: Configure-to-order (CTO) servers must start with a CTO Chassis.
NOTE: FIO indicates that this option is only available as a factory installable option.
NOTE: All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server.

Step 1: Base Configuration (choose one of the following configurable models)

HP Models

HP ProLiant ML310e Gen8 Hot Plug 4 LFF Configure-to-order Server 675241-B21

Factory Integrated Model ships with:

HP Ethernet 1Gb 2-port 330i Adapter
HP iLO Management Engine (standard on shared system NIC)
HP Dynamic Smart Array B120i Controller (RAID 0/1/10)
4 ports for HDD
NOTE: For set up instructions for HP Dynamic Smart Array B120i Controller please refer to the HP ProLiant ML300 series server user guide.
NOTE: For general information about HP Dynamic Smart Array B120i Controller, please visit:
http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb120i/index.html
Hot-Plug SAS/SATA 4 port cable
PCA Power Cord
Micro ATX Tower (4U)

HP ProLiant ML310e Gen8 Hot Plug 8 SFF Configure-to-order Server 675242-B21

Factory Integrated Model ships with:

HP Ethernet 1Gb 2-port 330i Adapter
HP iLO Management Engine (standard on shared system NIC)
Standup HP Smart Array Controller or Host Bus Adapter required
PCA Power Cord
Micro ATX Tower (4U)

HP ProLiant ML310e Gen8 Non-hot Plug 4 LFF Configure-to-order Server 675240-B21

Factory Integrated Model ships with:

HP Ethernet 1Gb 2-port 330i Adapter
HP iLO Management Engine (standard on shared system NIC)
HP Dynamic Smart Array B120i Controller (RAID 0/1/10)
4 ports for HDD
NOTE: For set up instructions for HP Dynamic Smart Array B120i Controller please refer to the HP ProLiant ML300 series server user guide
NOTE: For general information about HP Dynamic Smart Array B120i Controller, please visit:
http://h18004.www1.hp.com/products/servers/proliantstorage/arraycontrollers/smartarrayb120i/index.html
Nonhot-plug SAS/SATA 4 port cable
PCA Power Cord
Micro ATX Tower (4U)

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

HP Processors

Entry Processors
NOTE: Intel® Celeron® G540 supports up to 1066MHz DDR3 memory speeds.
Intel® Pentium® G860 support up to 1333 MHz DDR3 memory speeds

	Celeron processor, performance for 1600MHz memory is clocked down to 1066MHz. Pentium processor, performance for 1600MHz memory is clocked down to 1333MHz.	
	HP ML310e Gen8 Intel® Celeron G540 (2.5GHz/2-core/2MB/65W) FIO Processor Kit	682804-L21
	HP ML310e Gen8 Intel® Pentium® G2120 (3.1GHz/2-core/3MB/55W) FIO Processor Kit	703746-L21
	Base Processors **NOTE:** All support up to 1600MHz DDR3 memory speeds.	
	HP ML310e Gen8 Intel® Core™ i3-3220 (3.3GHz/2-core/3MB/55W) FIO Processor Kit	700582-L21
	HP ML310e Gen8 Intel® Core™ i3-3240 (3.4GHz/2-core/3MB/55W) FIO Processor Kit	700580-L21
	Performance Processors **NOTE:** All support up to 1600MHz DDR3 memory speeds.	
	HP ML310e Gen8 Intel® Xeon® E3-1220Lv2 (2.3GHz/2-core/3MB/17W) FIO Processor Kit	701433-L21
	HP ML310e Gen8 Intel® Xeon® E3-1220v2 (3.1GHz/4-core/8MB/69W) FIO Processor Kit	682812-L21
	HP ML310e Gen8 Intel® Xeon® E3-1230v2 (3.3GHz/4-core/8MB/69W) FIO Processor Kit	682814-L21
	HP ML310e Gen8 Intel® Xeon® E3-1240v2 (3.4GHz/4-core/8MB/69W) FIO Processor Kit	682816-L21
	HP ML310e Gen8 Intel® Xeon® E3-1270v2 (3.5GHz/4-core/8MB/69W) FIO Processor Kit	682818-L21
	HP ML310e Gen8 Intel® Xeon® E3-1280v2 (3.6GHz/4-core/8MB/69W) FIO Processor Kit	682820-L21
HP Memory	**Unbuffered with ECC DIMMs (UDIMMs)**	
	HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
	HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.	
HP Power Supplies	**NOTE:** Mixing of power supplies in the same server is not supported. All power supplies inside a server must be exactly the same model. Mixing Gold, Platinum, and Platinum Plus certified power supplies is not supported. **NOTE:** Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: www.hp.com/go/hppoweradvisor	
	HP 350W Factory Integrated Power Supply Kit	674838-B21

	HP Common Slot Gold Power Supplies **NOTE:** The following Power Supplies offer 92% Efficiency.	
	HP 460W Common Slot Gold Hot Plug Power Supply Kit	503296-B21
	Enablement Kit	
	HP 4U Redundant Power Supply Enablement Kit **NOTE:** The HP 4U Redundant Power Supply Enablement Kit (675843-B21) must be installed when using HP Common Slot power supplies.	675843-B21

Step 3: Choose Additional Factory Integratable Options

HP Optical Drives	HP Half-Height SATA DVD ROM JackBlack Optical Drive	624189-B21
	HP Half-Height SATA DVD RW JackBlack Optical Drive	624192-B21
HP Insight Software	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License	582765-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Core Options" and "Additional Options" section below.

Core Options

NOTE: Some options may not be integrated at the factory. Contact your local sales representative for additional information.

HP Unique Options	HP 4U 4 Large Form Factor Hot Plug Hard Drive Backplane Kit **NOTE:** The LFF Kit is a backplane kit designed for going from NHP LFF to hot-plug LFF.	674839-B21
	HP 4U 8 Small Form Factor Hot Plug Hard Drive Cage Kit **NOTE:** The SFF Kit is the cage plus backplane and designed to convert from any LFF configuration to SFF.	674841-B21
	HP 4U Redundant Power Supply Enablement Kit **NOTE:** The HP 4U Redundant Power Supply Enablement Kit (675843-B21) must be installed when using HP Common Slot power supplies.	675843-B21
HP Memory	**NOTE:** To realize the performance memory capabilities listed in this document, HP SmartMemory is required. For additional information, please see the HP SmartMemory QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/14225_div/14225_div.html (Worldwide)	
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
	HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21
HP Drive Cage Options	HP 4U 4 Large Form Factor Hot Plug Hard Drive Backplane Kit **NOTE:** The LFF Kit is a backplane kit designed for going from NHP LFF to hot-plug LFF.	674839-B21
	HP 4U 8 Small Form Factor Hot Plug Hard Drive Cage Kit **NOTE:** The SFF Kit is the cage plus backplane and designed to convert from any LFF configuration to SFF.	674841-B21
HP Optical Drives	HP Half-Height SATA DVD ROM JackBlack Optical Drive	624189-B21
	HP Half-Height SATA DVD RW JackBlack Optical Drive	624192-B21
HP Hard Drives	**NOTE:** The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components. **NOTE:** Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.	
	SAS Hot Plug with SmartDrive SFF (2.5-inch) Enterprise Drives	

HP 900GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652589-B21
HP 600GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652583-B21
HP 450GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652572-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652564-B21
HP 300GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652611-B21
HP 146GB 6G SAS 15K rpm SFF (2.5-inch) SC Enterprise 3yr Warranty Hard Drive	652605-B21
SAS Hot Plug SmartDrive SFF (2.5-inch) Midline Drives	
HP 1TB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652749-B21
HP 500GB 6G SAS 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	652745-B21
SAS Hot Plug SmartDrive LFF (3.5-inch) Enterprise Drives	
HP 600GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive	652620-B21
HP 450GB 6G SAS 15K rpm LFF (3.5-inch) SC Enterprise 3yr Warranty Hard Drive	652615-B21
SAS Hot Plug SmartDrive LFF (3.5-inch) Midline Drives	
HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652766-B21
HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	652757-B21
SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives	
HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516830-B21
HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516826-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)	
6G SATA Hot Plug with SmartDrive SFF (2.5-inch) Midline (MDL) Drives	
HP 1TB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655710-B21
HP 500GB 6G SATA 7.2K rpm SFF (2.5-inch) SC Midline 1yr Warranty Hard Drive	655708-B21
6G SATA Hot Plug with SmartDrive LFF (3.5-inch) Midline (MDL) Drives	
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	628061-B21
HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658079-B21
HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	657750-B21
HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) SC Midline 1yr Warranty Hard Drive	658071-B21
6G SATA Non-hot Plug LFF (3.5-inch) Midline (MDL) Drives	
HP 3TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	628065-B21

Core Options

	HP 2TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659339-B21
	HP 1TB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659337-B21
	HP 500GB 6G SATA 7.2K rpm LFF (3.5-inch) Non-hot plug Midline 1yr Warranty Hard Drive	659341-B21
	NOTE: SATA hard drives have a 1-year warranty. Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)	
	3G SATA MLC Hot Plug SFF (2.5-inch) Enterprise Mainstream Solid State Drives	
	HP 100GB 3G SATA MLC SFF (2.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653112-B21
	3G SATA MLC Hot Plug LFF (3.5-inch) Enterprise Mainstream Solid State Drives	
	HP 100GB 3G SATA MLC LFF (3.5-inch) SC Enterprise Mainstream 3yr Warranty Solid State Drive	653122-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14038_div/14038_div.html (Worldwide)	
	Hard Drive Kits	
	NOTE: All Factory Integrated Models will be populated with sufficient hard drive blanks based on the number of initial hard drives ordered with the server. NOTE: The part numbers for single HDD blanks below are provided should the customer require replacement HDD blanks for their server	
	HP LFF Gen8 Hard Drive Blank Kit	666986-B21
	HP SFF Gen8 Hard Drive Blank Kit	666987-B21
HP Networking	**Gigabit Ethernet adapters**	
	HP NC112T PCI Express Gigabit Server Adapter	503746-B21
	HP NC365T 4-port Ethernet Server Adapter	593722-B21
	HP Ethernet 1Gb 4-port 331T Adapter	647594-B21
	HP Ethernet 1Gb 2-port 332T Adapter	615732-B21
	HP Ethernet 1Gb 2-port 361T Adapter	652497-B21
	10 Gigabit Ethernet adapters	
	HP NC523SFP 10Gb 2-port Server Adapter	593717-B21
	HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21
	HP Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
	HP Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs	

Core Options

HP Power Supplies

NOTE: Mixing of power supplies in the same server is not supported. All power supplies inside a server must be exactly the same model. Mixing Gold, Platinum, and Platinum Plus certified power supplies is not supported.
NOTE: Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: www.hp.com/go/hppoweradvisor.

HP Common Slot Gold Power Supplies
NOTE: The following Power Supplies offer 92% Efficiency.

HP 460W Common Slot Gold Hot Plug Power Supply Kit	503296-B21

Enablement Kit

HP 4U Redundant Power Supply Enablement Kit	675843-B21

NOTE: The HP 4U Redundant Power Supply Enablement Kit (675843-B21) must be installed when using HP Common Slot power supplies.

NOTE: Option Kits for AC power supplies include the power supply and one PDU IEC cable.
NOTE: Power Specification and Technical Content for supported power supplies can be found at: http://h18000.www1.hp.com/products/quickspecs/14209_div/14209_div.html

Additional Options

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

HP Management Hardware	HP Dedicated iLO Management Port Kit	674845-B21
HP Insight Software	**HP Insight Control**	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	T9074BAE
	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Electronic License	TC278AAE
	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	452148-B22
	HP Insight Management Media Kit **NOTE:** HP Insight Management Media Kit contains DVDs without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Matrix Operating Environment, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates.	436222-B21
	HP Insight Control Server Deployment	
	HP Insight Control Server Deployment Upgr to Insight Control including 1yr 24x7 Supp Electronic Lic	T9101ABE
	HP Insight Control Server Deployment including 1yr 24x7 Support Electronic License	T9082AAE
	HP Insight Control Server Deployment including 1yr 24x7 Support Single Server License **NOTE:** Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key. **NOTE:** Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. **NOTE:** Licenses ship without media. The HP Insight Management Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates. **NOTE:** For additional license options please see the Insight Control QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html	452151-B21
	HP Integrated Lights-Out (iLO) Advanced for ProLiant Remote Management	
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Electronic License	TA850AAE
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
	HP iLO Advanced 1 Server License with 3yr 24x7 Tech Support and Updates	BD505A
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Flexible Quantity License	512486-B21
	HP iLO Advanced Flexible Qty License with 3yr 24x7 Tech Support and Updates	BD506A
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Tracking License	512487-B21
	HP iLO Advanced Tracking License with 3yr 24x7 Tech Support and Updates	BD507A

Additional Options

	NOTE: This license allows 1 server to be deployed and managed via HP iLO Advanced. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service. **NOTE:** For additional license kits, including electronic delivery options, please see the iLO QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/14276_div/14276_div.html	
High Performance Clusters	**HP HPC Linux Value Pack**	
	HP High Performance Computing Linux Value Pack 1 Processor Flexible License for ProLiant Servers **NOTE:** This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one socket (a.k.a. processor). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key.	TC293B
HP Security	HP Trusted Platform Module Option **NOTE:** The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to: www.hp.com/go/TPM. **NOTE:** ProLiant OS pre-installed units will come with the partition required for TPM deployment. **NOTE:** The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.	488069-B21
HP Storage Controllers	**SAS Controllers**	
	HP Smart Array P222 Controller	
	HP Smart Array P222/512 FBWC 6Gb 1-port Int/1-port Ext SAS Controller	631667-B21
	HP Smart Array P420 Controller	
	HP Smart Array P420/2GB FBWC 6Gb 2-ports Int SAS Controller	631671-B21
	HP Smart Array P420/1GB FBWC 6Gb 2-ports Int SAS Controller	631670-B21
	HP Smart Array P421 Controller	
	HP Smart Array P421/2GB FBWC 6Gb 2-ports Ext SAS Controller	631674-B21
	HP Smart Array P421/1GB FBWC 6Gb 2-ports Ext SAS Controller	631673-B21
	Optional Upgrades	
	HP 2GB P-series Smart Array Flash Backed Write Cache	631681-B21
	HP Smart Array Advanced Pack 2.0 No Media 1 Server 1yr 24x7 Support Software	BC377A
	HP Smart Array Advanced Pack 2.0 No Media Electronic Lic 1yr 24x7 Support Software	BC390AAE
	HP Smart Array Advanced Pack 2.0 No Media Flexible Qty 1yr 24x7 Support Software	BC390A

Additional Options

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/14227_div/14227_div.html (Smart Array P222 Controller)
http://h18000.www1.hp.com/products/quickspecs/14228_div/14228_div.html (Smart Array P420 Controller)
http://h18000.www1.hp.com/products/quickspecs/14229_div/14229_div.html (Smart Array P421 Controller)
http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html (Smart Array Advanced Pack)

HP Host Bus Adapters

HP H220 Host Bus Adapter	650933-B21
HP H221 Host Bus Adapter	650931-B21
HP H222 Host Bus Adapter	650926-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18004.www1.hp.com/products/quickspecs/14336_div/14336_div.html (HBA H220)
http://h18004.www1.hp.com/products/quickspecs/14222_div/14222_div.html (HBA H221)
http://h18004.www1.hp.com/products/quickspecs/14337_div/14337_div.html (HBA H222)

SCSI HBA

HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter	412911-B21

NOTE: Please see the following QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)

HP Tape Backup

NOTE: For the complete range of tape drives, autoloaders, libraries and media see: http://www.hp.com/go/tape. For hardware and software compatibility of HP tape backup products see: http://www.hp.com/storage/SPOCK and www.hp.com/go/ebs.

HP DAT72 SCSI Internal Tape Drive **NOTE:** Connection using HP SC11Xe Host Bus Adapter (412911-B21) recommended.	Q1522C
HP DAT160 SCSI Internal Tape Drive **NOTE:** Connection using HP SC11Xe Host Bus Adapter (412911-B21) recommended.	Q1573B
HP Ultrium 920 SCSI Internal Tape Drive **NOTE:** Connection using HP SC11Xe Host Bus Adapter (412911-B21) recommended.	EH841B
HP LTO-4 Ultrium 1760 SCSI Internal Tape Drive **NOTE:** Connection using HP SC11Xe Host Bus Adapter (412911-B21) recommended.	EH921B
HP 1/8 G2 Ultrium 920 SAS Autoloader **NOTE:** Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. Connection using HP Smart Array P222Controller (631667-B21) recommended.	AH558A
HP Ultrium 448 SAS Internal Tape Drive **NOTE:** Connection using HP H222Host Bus Adapter (650926-B21) recommended.	DW085B

Additional Options

	HP Ultrium 920 SAS Internal Tape Drive **NOTE:** Connection using HP H222Host Bus Adapter (650926-B21) recommended.	EH847B
	HP StoreEver LTO-6 Ultrium 6250 Tape Drive in 1U Rack-mount Kit	C0L99A
	HP StoreEver LTO-6 Ultrium 6650 Internal Tape Drive	EH963A
	HP StoreEver LTO-6 Ultrium 6650 External Tape Drive	EH964A
	HP StoreEver LTO-6 Ultrium 6250 Internal Tape Drive	EH969A
	HP StoreEver LTO-6 Ultrium 6250 External Tape Drive	EH970A
HP Uninterruptible Power Systems	**HP Tower UPS**	
	HP T1500 G3 UPS Models	
	HP T1500 G3 1400VA INTL Tower Uninterruptible Power System	AF451A
	HP T1500 G3 1400VA NA Tower Uninterruptible Power System	AF450A
	HP T1500J JP Uninterruptible Power System	AF458A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13160_div/13160_div.html (Worldwide)	
	HP Rack-mountable UPS	
	HP R1500 G3 Uninterruptible Power Supply (UPS)	
	HP R1.5kVA G3 1U NA Uninterruptible Power System	AF469A
	HP R1.5kVA G3 1U JP/TW Uninterruptible Power System	AF470A
	HP R1.5kVA G3 1U INTL Uninterruptible Power System	AF471A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14059_div/14059_div.html (Worldwide)	
	HP R/T3000 G2 Uninterruptible Power System (UPS)	
	HP R/T3000 G2 2U L530 Low Voltage NA/JP Uninterruptible Power System	AF466A
	HP R/T3000 G2 2U L620 High Voltage NA/JP Uninterruptible Power System	AF467A
	HP R/T3000 G2 2U Detachable Cord High Voltage INTL Uninterruptible Power System	AF468A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14058_div/14058_div.html (Worldwide)	
	R5000 Uninterruptible Power System (UPS)	
	HP R5KVA 3U IEC309-32A High Voltage INTL Uninterruptible Power System	AF461A
	HP R5KVA 3U L630 High Voltage NA/JP Uninterruptible Power System	AF460A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14109_div/14109_div.html (Worldwide)	
	R7000 Uninterruptible Power System (UPS)	
	HP R7KVA 4U 50A High Voltage NA/JP Uninterruptible Power System	AF462A
	HP R7KVA 4U IEC-32A High Voltage INTL Uninterruptible Power System	AF463A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14110_div/14110_div.html (Worldwide)	
	NOTE: For additional information on HP Uninterruptible Power Systems please go to: www.hp.com/servers/rackups. **NOTE:** For additional information on sizing your server, please reference: http://www.upssizer.com.	

Additional Options

NOTE: Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords.

HP Power Distribution Units	**Monitored PDUs**	
	HP Monitored Power Distribution Unit: Full Rack Version	
	HP 8.6kVA 24A Single Input Three Phase NA/JP Monitored Power Distribution Unit	AF504A
	HP 8.3kVA 40A Single Input Single Phase NA/JP Monitored Power Distribution Unit	AF506A
	HP 11kVA 16A Single Input Three Phase INTL Monitored Power Distribution Unit	AF508A
	HP 7.3kVA 32A Single Input Single Phase INTL Monitored Power Distribution Unit	AF510A
	HP Monitored Power Distribution Unit: Half Rack Version	
	HP 4.9kVA 24A Single Input Single Phase NA/JP Monitored Power Distribution Unit	AF914A
	HP 7.3kVA 32A Single Input Single Phase INTL Monitored Power Distribution Unit	AF915A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12118_div/12118_div.html	
	Modular PDUs 1U/0U	
	NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 G2 and 9000 series racks).	
	HP 3.6kVA 16A High Voltage INTL Modular Power Distribution Unit	252663-B24
	HP 4.9kVA 24A High Voltage NA/JP Modular Power Distribution Unit	252663-D72
	HP 8.3kVA 40A High Voltage NA/JP Modular Power Distribution Unit	252663-D73
	HP 7.3kVA 32A High Voltage INTL Modular Power Distribution Unit	252663-B31
	NOTE: For additional information on HP Power Distribution Units including accessories please go to: www.hp.com/go/pdu. **NOTE:** Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords. **NOTE:** This PDU has a detachable input power cord and allows for adaptability to country specific power requirements. **NOTE:** Please see the following QuickSpecs for additional options including shorter jumper cables and country specific power cords: http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html (Worldwide)	

Additional Options

HP Intelligent Power Distribution Units (iPDU)	**iPDU Core Units**	
	HP 4.9kVA 24A Single Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF520A
	HP 8.6kVA 24A Three Phase NA/JP Core Intelligent Modular Power Distribution Unit	AF522A
	HP 7.3kVA 32A Single Phase INTL Core Intelligent Modular Power Distribution Unit	AF525A
	HP 11kVA 16A Three Phase INTL Core Intelligent Modular Power Distribution Unit	AF526A
	iPDU Extension Bars	
	HP 5xC13 Intelligent PDU Extension Bar G2 Kit	AF547A
	HP 5xC13 Outlets Power and UID LEDs Pair Standard Extension Bar	AF528A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13650_div/13650_div.html (Worldwide)	
HP Rack Series	**HP Intelligent Series Rack**	
	HP 636 1075mm Pallet Intelligent Series Rack	BW895A
	HP 636 1075mm Shock Intelligent Series Rack	BW896A
	HP 642 1075mm Pallet Intelligent Series Rack	BW903A
	HP 642 1075mm Shock Intelligent Series Rack	BW904A
	HP 647 1075mm Pallet Intelligent Series Rack	BW911A
	HP 647 1075mm Shock Intelligent Series Rack	BW912A
	NOTE: Please see the QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/14223_div/14223_div.html (Worldwide) **NOTE:** For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
HP Rack Options	**HP Location Discovery Services**	
	HP 36U Location Discovery Kit	BW945A
	HP 42U Location Discovery Kit	BW946A
	HP 47U Location Discovery Kit	BW947A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/14429_div/14429_div.html (Worldwide)	
	HP USB Keyboard and Mouse	
	HP USB BFR with PVC Free US Keyboard/Mouse Kit	631341-B21
	HP USB BFR with PVC Free UK Keyboard/Mouse Kit	631344-B21
	HP USB BFR with PVC Free FR Keyboard/Mouse Kit	631346-B21
	HP USB BFR with PVC Free ES Keyboard/Mouse Kit	631348-B21
	HP USB BFR with PVC Free DE Keyboard/Mouse Kit	631358-B21
	HP USB BFR with PVC Free JP Keyboard/Mouse Kit	631360-B21
	HP USB BFR with PVC Free IT Keyboard/Mouse Kit	631362-B21
	HP USB BFR with PVC Free CN Keyboard/Mouse Kit	631364-B21

Additional Options

HP USB BFR with PVC Free AE Keyboard/Mouse Kit	638212-B21
HP USB BFR with PVC Free RU Keyboard/Mouse Kit	638214-B21
HP USB BFR with PVC Free IN Keyboard/Mouse Kit	672097-D63
HP USB BFR with PVC Free AP-Intl Keyboard/Mouse Kit	672097-373
HP USB BFR with PVC Free Intl Keyboard/Mouse Kit	672097-B33
HP USB BFR with PVC Free PT Keyboard/Mouse Kit	672097-133
HP USB BFR with PVC Free TR Keyboard/Mouse Kit	672097-143
HP USB BFR with PVC Free CZ Keyboard/Mouse Kit	672097-223
HP USB BFR with PVC Free FI Keyboard/Mouse Kit	672097-353
HP USB BFR with PVC Free SE Keyboard/Mouse Kit	672097-103
HP USB BFR with PVC Free CH Keyboard/Mouse Kit	672097-113
HP USB BFR with PVC Free KR Keyboard/Mouse Kit	672097-KD3

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13792_div/13792_div.html (Worldwide)

HP TFT7600 G2 KVM Console Rackmount Keyboard Monitor

HP TFT7600 G2 KVM Console Rackmount Keyboard US Monitor	AZ870A
HP TFT7600 G2 KVM Console Rackmount Keyboard UK Monitor	AZ871A
HP TFT7600 G2 KVM Console Rackmount Keyboard DE Monitor	AZ872A
HP TFT7600 G2 KVM Console Rackmount Keyboard FR Monitor	AZ873A
HP TFT7600 G2 KVM Console Rackmount Keyboard IT Monitor	AZ874A
HP TFT7600 G2 KVM Console Rackmount Keyboard ES Monitor	AZ875A
HP TFT7600 G2 KVM Console Rackmount Keyboard DK Monitor	AZ876A
HP TFT7600 G2 KVM Console Rackmount Keyboard NO Monitor	AZ877A
HP TFT7600 G2 KVM Console Rackmount Keyboard SE/FI Monitor	AZ878A
HP TFT7600 G2 KVM Console Rackmount Keyboard CH Monitor	AZ879A
HP TFT7600 G2 KVM Console Rackmount Keyboard PT Monitor	AZ880A
HP TFT7600 G2 KVM Console Rackmount Keyboard BE Monitor	AZ881A
HP TFT7600 G2 KVM Console Rackmount Keyboard JP Monitor	AZ882A
HP TFT7600 G2 KVM Console Rackmount Keyboard RU Monitor	AZ883A
HP TFT7600 G2 KVM Console Rackmount Keyboard Intl Monitor	AZ884A
HP TFT7600 G2 KVM Console Rackmount Keyboard US TAA Monitor	AZ885A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/13731_div/13731_div.html (Worldwide)

HP Server Console Switches

HP Server Console 0x2x8 Port Analog Switch	AF616A
HP Server Console 0x2x16 Port Analog Switch	AF617A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/11834_div/11834_div.html (Worldwide)

HP Server Console Switch G2 with Virtual Media & CAC

HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A

Additional Options

	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html (Worldwide)	
	HP IP Console Switch G2 with Virtual Media & CAC	
	HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
	HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
	HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html (Worldwide)	
	Rack Kit	
	HP Tower to Rack Conversion Tray Universal Kit	417705-B21
HP USB and SD Options	HP 4GB Secure Digital High Capacity Flash Media Kit **NOTE:** Blank SD media device is supported for use with VMware and Citrix. SD media must be installed in the internal slot of the ProLiant server. Learn more at http://www.hp.com/go/proliantvirtualization.	580387-B21
HP Care Pack Services	HP 3 year 24 hour Call to Repair 24x7 ProLiant ML310e Hardware Support	U6G25E
	HP 3 year 24 hour Call to Repair 24x7 w/ Defective Media Retention ProLiant ML310e Hardware Support	U6G26E
	HP 3 year 4 hour 13x5 ProLiant ML310e Hardware Support	U6F67E
	HP 3 year 4 hour 13x5 with Defective Media Retention ProLiant ML310e Hardware Support	U6F68E
	HP 3 year 4 hour 24x7 ProLiant ML310e Collaborative Support	U6F71E
	HP 3 year 4 hour 24x7 ProLiant ML310e Hardware Support	U6F69E
	HP 3 year 4 hour 24x7 ProLiant ML310e Proactive Care Service	U6F73E
	HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant ML310e Collaborative Support	U6F72E
	HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant ML310e Hardware Support	U6F70E
	HP 3 year 4 hour 24x7 with Defective Media Retention ProLiant ML310e Proactive Care Service	U6F74E
	HP 3 year 6 hour Call to Repair 24x7 ProLiant ML310e Collaborative Support	U6F77E
	HP 3 year 6 hour Call to Repair 24x7 ProLiant ML310e Hardware Support	U6F75E
	HP 3 year 6 hour Call to Repair 24x7 ProLiant ML310e Proactive Care Service	U6F79E
	HP 3 year 6 hour CalltoRepair 24x7 w/Defective Media Retention ProLiant ML310e Collaborative Support	U6F78E
	HP 3 year 6 hour Call to Repair 24x7 with Defective Media Retention ProLiant ML310e Hardware Support	U6F76E
	HP 3 year 6 hour Call to Repair 24x7 w/ Defective Media Retention ProLiant ML310e Proactive Care SVC	U6F80E
	HP 3 year Next business day ProLiant ML310e Collaborative Support	U6F63E
	HP 3 year Next business day ProLiant ML310e Hardware Support	U6F61E
	HP 3 year Next business day ProLiant ML310e Proactive Care Service	U6F65E

Additional Options

HP 3 year Next business day with Defective Media Retention ProLiant ML310e Collaborative Support	U6F64E
HP 3 year Next business day with Defective Media Retention ProLiant ML310e Hardware Support	U6F62E
HP 3 year Next business day with Defective Media Retention ProLiant ML310e Proactive Care Service	U6F66E
HP Install ProLiant ML310e Service	U6G21E
HP Installation Non Standard Hours ProLiant ML310e Service	U6G22E
HP Startup ProLiant ML310e Service	U6G23E
HP Startup non Standard Hours Proliant ML310e Service	U6G24E

NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack

Memory

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

HP SmartMemory

New HP SmartMemory now provides additional protection for your servers. With HP Authentication it can verify that you have true HP Qualified Memory in your HP ProLiant Gen8 server. With HP SmartMemory your new HP ProLiant server can take advantage of additional Gen8 enhancements in performance, durability and future manageability support through HP Active Health System

DDR3 memory population guidelines

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator

General Guidelines:

- The HP ProLiant ML310e Gen8 Server has four memory slots
- There are two channels per server with two DIMM slots per channel
- Memory channel 1 consists of the two (2) DIMMs that are closest to the processor
- Memory channel 2 consists of the two (2) DIMMs that are furthest from the processor
- Different types of processors have different types of memory support.
- Support for single/dual-rank 1333/1600 MT/s ECC UDIMM (unbuffered DIMMS)
- The server supports up to 32 GB (4 x 8-GB) for Unbuffered DIMMs
- No support for LRDIMMs;RDIMMs; Non-ECC UDIMMs
- Do not install DIMMs if the processor is not installed
- Populate DIMMs from heaviest load (double-rank) to lightest load (single-rank)
- Non-ECC DIMMs are not supported
- Always use HP qualified DIMMs

ML310e Gen8 Supported Memory Bandwidth and Capacity

DIMM Type	**Unbuffered with ECC DIMMs (UDIMMs)**					
DIMM Rank	**Single Rank (1R)**		**Dual Rank (2R)**			
DIMM Capacity	2GB	2GB	4GB	4GB	8GB	8GB
DIMM Native Speed (MHz)	1333	1600	1333	1600	1333	1600
Voltage	LV	Std	LV	Std	LV	Std
SLOTS THAT CAN BE POPULATED						
4 slot servers	4	4	4	4	4	4
MAXIMUM CAPACITY (GB)*						
	8	8	16	16	32	32
POPULATED DIMM SPEED (MHz)						
1 DIMM Per Channel	1333	1600	1333	1600	1333	1600
2 DIMM Per Channel	1333**	1600	1333**	1600	1333**	1600

NOTE: Memory speed is a function of the processor QPI bus speed. To realize the performance memory capabilities listed above HP SmartMemory is required.

* Maximum capacity will vary based on individual server platform qualification schedule

** For HP SmartMemory, UDIMM is supported at 2DPC@1333 at 1.35V. Third party memory may only support up to 2DPC@1066 at 1.5V.

Memory

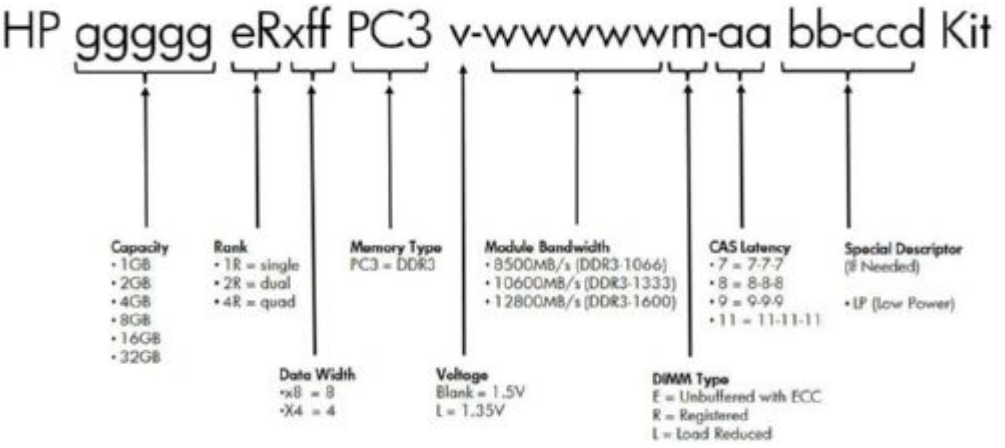
Memory		Slot			
		DIMM1C	DIMM2A	DIMM3D	DIMM4B
Standard (Base Model)	**2 GB**	Empty	2 GB	Empty	Empty
Standard (Performance Model)	**4 GB**	Empty	4 GB	Empty	Empty
Maximum	**32 GB**	8 GB	8 GB	8 GB	8 GB

Memory Speed by Processor Model	
Processor Models	Supported Memory Speeds
E3-1220Lv2, E3-1220v2, E3-1230v2, E3-1240v2, E3-1270v2, E3-1280v2, i3-3240, i3-3220	1600/1333/1066MHz
G2120	1333/1066MHz
G540	1066MHz

NOTE: Capacity references are rounded to the common Gigabyte values.

- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB

DDR3 memory options part number decoder



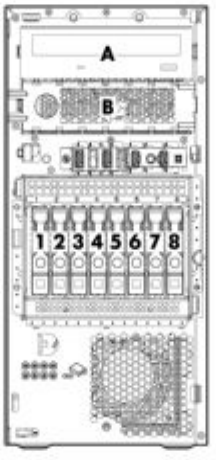
Following are memory options available from HP:

HP Memory	**Unbuffered with ECC DIMMs (UDIMMs)**	
	HP 2GB (1x2GB) Single Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669320-B21
	HP 2GB (1x2GB) Single Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647905-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669322-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647907-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3-12800E (DDR3-1600) Unbuffered CAS-11 Memory Kit	669324-B21
	HP 8GB (1x8GB) Dual Rank x8 PC3L-10600E (DDR3-1333) Unbuffered CAS-9 Low Voltage Memory Kit	647909-B21

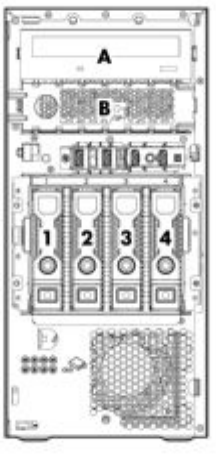
Memory

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

Storage



1 - 8	8 x 2.5" (SFF) SAS/SATA hard drive bays
A	Removable Optical Drive
B	Removable Optical Drive **NOTE.** Once Redundant Power Supply is installed, Bay A will be the only media bay available for use.



1 - 4	4 x 3.5" (LFF) SAS/SATA hard drive bays
A	Removable Optical Drive
B	Removable Optical Drive **NOTE.** Once Redundant Power Supply is installed, Bay A will be the only media bay available for use.

External Storage

	Quantity Supported	Position Supported	Controller
D2600 Disk Enclosure	Up to 4	External	HP Smart Array P222/512MB FBWC Controller
	Up to 8	External	HP Smart Array P421/1GB FBWC Controller HP Smart Array P421/2GB FBWC Controller
D2700 Disk Enclosure	Up to 4	External	HP Smart Array P222/512MB FBWC Controller
	Up to 8	External	HP Smart Array P421/1GB FBWC Controller HP Smart Array P421/2GB FBWC Controller

System Unit	**Tower Dimensions** (H x W x D) (with feet/bezel)	14.5.x 6.89 x 18.71 in (36.82 x17.5 x 47.52 cm)	
	Tower Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	41.8 lb (18.96 kg)
		Minimum (one hard drive, power supply, and processor installed)	25.29 lb (11.47 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100 to 240 VAC
		Rated Input Current	7.1 Amps (at 120VAC) to 3.5 Amps (at 240 VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	486 W
	BTU Rating	Maximum	460W - 1773 BTU / hr (at 120 VAC), 1715 (at 240 VAC)
	Power Supply Output (per power supply)	Rated Steady-State Power	350 W (at 100 VAC), 350 W (at 200 VAC)
		Maximum Peak Power	350 W (at 100 VAC), 350 W (at 200 VAC)
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 304.8 m (1.8°F per every 1000 ft) above sea level to a maximum of 3048 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
		Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
	Altitude	Operating	3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
		Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	

	Idle	
	L WAd	4.3 B
	L pAm	26dB-A
	Operating	
	L WAd	4.4 B
	L pAm	28dB-A
	NOTE: The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.	
Emissions Classification (EMC)	**FCC Rating**	Class B
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1
	NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.	

HP iLO 4 On System Management	**Architecture**	PCI Express based health and remote management ASIC
	Processor	Embedded ARM processor core operating at 400MHz
	Upgradeability	Firmware upgradeable via Flash ROM
	Video Support	1920 x 1200 (16 bpp) DVR max resolution
	Interfaces	HP iLO Dedicated* Network connection (10/100/1000 Mbps) on ML, DL and SL systems *Optional Module on some servers HP iLO Shared Network connection (10/100/1000 Mbps) on ML, DL and SL systems HP iLO Network connection (10/100 Mbps) to Onboard Administrator (with 10/100/1000 Mbps uplink) to BladeSystem link is 1Gbps
	Memory	16 MB Flash 256 MB DDR 3 with ECC (112 MB after ECC and video)
	Operating System Support	For information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server including how to purchase from HP, please visit our OS Support Site at: http://www.hp.com/go/ossupport
	Client System Support	For information on Client System Support, please visit the HP iLO Feature Comparison Site at: www.hp.com/go/compareilo
	Client Browser Support	Microsoft Internet Explorer 9 **NOTE:** For customers using Protected Mode, please use the Java based version of Integrated Remote Console. Microsoft Internet Explorer 8 **NOTE:** For customers using Protected Mode, please use the Java based version of Integrated Remote Console. Microsoft Internet Explorer 7 Firefox Extended Support Release (ESR) 10 (on supported Windows and Linux systems Firefox 3.6 (on supported Windows and Linux systems)
	Command Line Support	Secure Shell and serial port access Secure Socket Layer Secure Shell version 2

	Security	Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, CLP and XML scripting interface
		AES encryption of video
		RC4 encryption of video
	Directory Support Services	Active Directory v1.0 (Windows 2003)
	Driver Support	HP ProLiant iLO 4 Management Controller Driver Package
	Management protocols supported	SNMP, IPMI 2.0 (system and LAN interface), DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), HP RIBCL XML
HP Dynamic Smart Array B120i Controller	**Dimensions**	Embedded
	Disk Drive and Enclosure Interface - Transfer rate	Up to 6Gb/s SATA (Serial ATA)
	SATA Connectors	6 internal connectors w/hot plug support
	Server Interface	PCIe 2.0
	SATA Speed	3Gb/s SATA links
	Cache Memory	None
	Logical Drives Supported	Zero Memory, Up to 2 logical volumes (6 physical drives)
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	Hot Plug Support	Yes
	RAID Support	RAID 0 (Striping), RAID 1 (Mirroring)
		RAID 1+0 (Striping & Mirroring)
HP Ethernet 1Gb 2-port 330i Adapter	**Network Interface**	10Base-T/100Base-TX/1000Base-TX
	Compatibility	IEEE 802.3 10Base-T
		IEEE 802.3ab 1000Base-T
		IEEE 802.3u 100Base-TX
	Data Transfer Method	PCI-e, two lanes (x2)
	Controller	BCM5717
	Network Transfer Rate	10Base-T (Half-Duplex) 10 Mb/s per port, 20 Mb/s Combined
		10Base-T (Full-Duplex) 20 Mb/s per port, 40 Mb/s Combined
		100Base-TX (Half-Duplex) 100 Mb/s per port, 200 Mb/s Combined
		100Base-TX (Full-Duplex) 200 Mb/s per port, 400 Mb/s Combined
		1000Base-TX (Half-Duplex) 1000Mb/s per port, 2000 Mb/s Combined
		1000 Base-TX (Full-Duplex) 2000Mb/s per port, 4000 Mb/s Combined
	Connector	RJ-45
	Cable Support	10Base-T Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX Category 5 or better; up to 328 ft (100 m)

Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.